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BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Project	Date	Author

SUBJECT—

TITLE

REPORT OF PINE BEETLE SURVEYS

on the

Klamath Indian Reservation and Included Private Lands

Season of 1946

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December 11, 1946

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SUMMARY OF RESULTS

1945 Losses (Complete Records)

Primary Insect: Western pine beetle in ponderosa pine

Estimated Gross Ponderosa Pine Mortality for 1945:

	No. of Trees	Volume Board Feet
Klamath Indian Reservation	23,000	18,500,000
Included Private Lands	2,500	2,000,000
	25,500	20,500,000

Trend: Slightly upward from 1944

Classification of Infestation: Normal endemic infestation

1946 Losses (Incomplete Records)

Primary Insect: Western pine beetle in ponderosa pine

Probable Trend: Upward from 1945 level - probably 20 percent higher

Recommendations: No control work necessary at this time. Present system of selective cutting which shows little subsequent insect-caused mortality, should be augmented by sanitation-salvage cuttings if conditions indicate a marked increase in pine beetle losses.

REPORT OF FOREST INSECT SURVEYS ON THE KLAMATH INDIAN RESERVATION AND INCLUDED PRIVATE LANDS

Season of 1946

The 26th annual forest insect survey of the ponderosa pine stands of the Klamath Indian Reservation and included private lands was conducted during the period October 18-23, 1946. The field work, which consisted of a 100 percent recruise of five 320-acre check plots, was completed by a crew of Indian Service personnel: C. E. Chester, N. F. Caywood, Lynn Hatch, and A. W. Galbraith. Mr. Chester also compiled the field data for Table 1. The cost of the 1946 survey was carried by the Indian Service.

As in the past, the survey served two purposes: to follow the trend of recent pine beetle infestations and to determine the need for direct control work.

RESULTS OF THE 1946 SURVEY

The 1946 survey completed the loss records for 1945 and collected partial data for 1946. Although no general reconnaissance of the pine stands of the reservation was made, it was felt that pine beetle losses are continuing at a low endemic or normal level. The low rate of loss found on the five check plots supports this opinion. As shown in Table 1, the gross 1945 losses ranged from 28 to 72 board feet per acre or 0.35 to 0.52 percent of the stand. This is well below the growth rate for virgin ponderosa pine stands.

When the survey was made, approximately 75 percent of the total 1946 losses were evident. On this basis, the estimated losses for 1946 are about 22 percent higher than those of 1945, with two plots showing marked increases and three plots showing slight to moderate decreases. In spite of this increase, the current losses are still of a low endemic nature and need cause no concern.

The trend of pine beetle losses from 1937 to 1946 on the Klamath Indian Reservation is shown in Figure 1. The average board feet per acre loss on all check plots covered during each survey forms the basis for this figure. As shown by this figure, pine beetle losses have been at a very low level since 1941; reaching an all time low in 1943.

As in the past, the western pine beetle (Dendroctonus brevicomis Lec) was responsible for most of the current losses, with the mountain pine beetle (D. monticolae Hopk.) species of Ips and flatheaded borers also found in the infested trees. Practically all of the recent losses consisted of single scattered trees in a decadent or overmature condition.

Because of the limited sampling, estimates of the total gross ponderosa pine losses on the reservation and private lands are but rough approximations. On the basis of the trend found on the check plots, the 1945 mortality for the reservation as a whole is roughly estimated to be as follows:

	1945 Mortality	
	Trees Killed	Volume Killed MBM
Klamath Indian Reservation	23,000	18,500
Included Private Lands	2,500	2,000
Total	25,500	20,500

CONCLUSION

In view of the continued low level of the current pine beetle infestations on the Klamath Indian Reservation and included private lands, no control work is necessary at this time. An increase in ponderosa pine mortality in 1946 was indicated on the check plots; however, this rise is slight and is not serious enough to cause concern.

A rapid coverage of the remaining virgin stands of the reservation on a sanitation-salvage basis ahead of the main logging operations would save a high volume of commercially valuable timber from destruction by pine beetles. However, this may not be economically feasible. The present system of selective cutting is leaving a healthy vigorous reserve stand which is showing very little insect-caused mortality.

TABLE 1. Results of the 1946 Survey on the Klamath Indian Reservation. Ponderosa Pine Timber Killed by Insects on 320 Acre Check Plots

CHECK PLOTS					1945 LOSSES Gross Volume (BM)				1946 LOSSES Marked in 1946			1946 LOSSES Estimated Total Loss Volume (BM)			
Name & Location	No.	Acres	Pine Volume (MBM)	No. Trees	Total	Per Acre	% Stand	Ratio to 1944	Date	No. Trees	Volume (BM)	No. Trees	Total	Per Acre	% Stand	Ratio to 1945
Little Yamsey T29S,R11E,Sec.29N/2	3	320	3,790	19	16,240	51	.43	1.41	10/18	14	8,770	19	12,000	37	.31	.73
Skellock Draw T30S,R10E,Sec.27S/2	5	320	4,460	28	23,200	72	.52	1.06	10/18	15	29,670	20	39,500	124	.89	1.71
Wildhorse T32S,R10E,Sec.10W/2	7	320	2,580	10	8,990	28	.35	6.86	10/22	8	14,700	11	20,000	63	.78	2.25
Taylor Butte T33S,R10E,Sec.15S/2	8	320	3,440	25	14,360	45	.42	.68	10/22	29	9,650	38	11,000	35	.32	.77
Long Creek T31S,R13E,Sec.33N/2	29	320	3,500	19	17,440	55	.50	.76	10/21	17	11,890	23	16,000	50	.46	.92
Total 5 Plots		1600	17,770	101	80,230	50	.45	1.04		83	74,680	111	98,500	62	.55	1.22
Average Per Plot		320	3,550	20	16,040	50	.45	1.04		17	14,940	22	17,700	62	.55	1.22

Figure 1. Average Board Foot Per Acre Losses on Pine Beetle Survey Check Plots of the Klamath Indian Reservation and Included Private Lands, 1937-1946.